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MILITARY TRAINING TRANSFERABILITY STUDY, DECEMBER 15, 1966. QUARTERLY REPORT.

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PROGRESS WAS REPORTED ON AN ANALYTICAL SURVEY EFFORT OF THE HISTORICAL IMPLICATIONS OF OCCUPATIONAL CROSSOVER AND MOBILITY BETWEEN MILITARY AND CIVILIAN LIFE. TENTATIVE CONCLUSIONS WERE DRAWN ON THE RESPONSIBILITY OF THE U.S. MILITARY SERVICE PROGRAM FOR (1) OFFERING TRAINING IN INTERESTING AND TRANSFERABLE JOB SKILLS AND (2) PROVIDING GOVERNMENT-FINANCED PUBLIC EDUCATION PROGRAMS FOR QUALIFIED PERSONNEL. LAW ENFORCEMENT AND HEALTH SERVICE OCCUPATIONS WERE DESCRIBED AS TWO OF THE MANY POTENTIAL AREAS WHERE OCCUPATIONAL CROSSOVER COULD BE EFFECTED. (JH)

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MILITARY TRAINING TRANSFERABILITY STUDY

December 15, 1966

U.S. DEPARTMENT OF
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QUARTERLY REPORT

Project No. 6-2198
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Paul A. Weinstein
December 15, 1966

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University of Maryland
College Park, Maryland

Introduction

The highlight of progress in the past quarter is the presentation of the first quantitative results of the Military Training Study.[1]

I was a participant in two conferences on the revision of the Selective Service Act. First, I appeared as a resource person at the National Conference on the Draft sponsored by the American Veterans Committee. Secondly, I served as a panel member at the Conference on the Draft sponsored by the University of Chicago and supported by the Ford Foundation. Mr. Eugene Jurkowitz, my research associate, also was a participant at this conference. It was for the latter conference that the enclosed paper was prepared.

I. Progress

The following represents other substantive accomplishments. Table I summarizes the current state of progress of the Military Training Study. In addition to these returns, we have also received 806, out of a requested 2,112, affirmative releases authorizing our use of social security account information on an individual basis. This will allow very adequate, detailed work on quarterly earnings data.

We have proceeded to investigate the possibilities of further analyzing those individuals who we were unable to survey in the telephone interview phase. Retail Credit Company has estimated $30 per completed unit, using such sources as telephone books and direct contact with neighbors and relatives. While Retail Credit

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[1]The paper and accompanying ERIC document are included.

TABLE I
INTERVIEW PROGRESS OF SAMPLE FROM U.S. ARMY RESERVE

	Total Sample Drawn	
I.	Correct Phone Number Not Obtained:	2,599
	A. Deceased:	5
	B. Not Located[a]:	2,594
II.	Presumably Correct Phone Number Obtained:	3,045
	A. No Final Action[b]:	854
	B. Final Action:	2,191
	1. Interviewed:	2,112
	2. Refused:	79

[a]Includes those for whom we got phone numbers which turned out to be incorrect.

[b]Contact made, but no interview.

Company is considered one of the more reliable firms in this field, neither their costs or their techniques warrant immediate action.

We have been exploring a more fruitful procedure through our sources at the Army Records Center in St. Louis. At an estimated cost of $2 per unit, we would receive information on three relatives who were deemed to be permanently located and who would know the whereabouts of respondents. We intend to try this on a pilot basis before going full tilt with the "unlocatibles".

On the basis of a reserve manpower tape received from the Navy, we are in the process of drawing a sample from nine major groups. We shall then proceed to interview these individuals. This should be started within the next thirty days.

We are in receipt of material from the Air Force and are converting their RCA 501 tape into compatible IBM 7094 tape. We will then proceed to draw our materials from the Air Force.

II. Analysis

We have continued to refine the programs in the computer for obtaining tabulations, such as those appearing in the paper attached.

We completed the input of materials from the Army sample population. We are now prepared to obtain from the Social Security Administration the materials which they hold on both those individuals from whom we have received releases and for individuals who have not replied.

We have started designing the cross-tabs for significant relationships.

Most of our effort has been in examining the crude crossover of first, current and non-switching job holders. We are currently developing density patterns for occupations for each MOS group by the respondents evaluation of crossover use. Further analysis of this material will be a major endeavor in the next quarter. From this material, we should begin to get the quantitative data and theoretical suggestions for an index of transferability.

Work has progressed in analyzing the historical variables in occupational crossover.

We ran the first regressions using some of our quantitative data. The income material from the survey was examined for effects on inter-regional mobility. These first runs were not successful, and we are proceeding to improve the performance here.

III. Output and Utilization

In addition to the activity mentioned above, I have been asked to brief the Labor Department on the work of this study -- in particular to explore the relationship of the employment of Negroes to military service within the United States.

Some further material will be forthcoming in my critique on research for the volunteer army in a program in San Francisco to be held the end of this month.

Occupational Crossover and Universal Military Training

Paper Prepared for Conference on the Draft
University of Chicago, December 4-7, 1966

By Paul A. Weinstein
Military Training Study
Department of Economics
University of Maryland

This is preliminary and is not to be quoted or used in any form without the written permission of the author.

INTRODUCTION

The research undertaken by the Military Training Study[1] points to the potential that the military has as a buttress to support numerous civilian goals enunciated in the past decade. The spill-over effects of the military should be considered in a total evaluation as we seek to analyze the set of policy mixes that is open. This is particularly appropriate as we now reconsider the Selective Service System and alternatives to the system.

The policy recommendations presented below in Section IV require a sharp break from the systems analysis approach to the management problems of government. This budget technique is based on a parochial system of counting gains and a catholic approach to costs. The consequences of this procedure are not apparent because no built in system of checks has been devised to account for the real cost to the economy of improperly utilized resources. It is because of this limited budget approach that no branch of the government has seriously been concerned with the human capital impact of the military. Defense provided the training, but was not the beneficiary of this work outside the military, ergo it was unconcerned about measuring its impact and has in fact denigrated the process on the assumption that human capital transferance would encourage

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[1]The research underlying this paper was carried out under a grant from the Ford Foundation and augmented by a grant by the U S. Office of Education. Many federal agencies and individuals were involved. Richard Beaumont, formerly of Industrial Relations Counselors was invaluable by offering encouragement resources and access to strategic individuals. Assisting me in this paper are Eugene L Jurkowitz, Richard Wertheimer, Elaine Greenbaum and Alice Weinstein. The views expressed herein are the responsibility of the author and do not represent either the Ford Foundation or the U.S. Office of Education.

The quantitative data presented here are preliminary and incomplete. They represent less than 50 percent of the Army sample and none of the Navy and Air Force. Any conclusions drawn from these data are tentative pending analysis of the remaining material.

separation. Other branches of the government have not looked at spillover because it might cast a pall over their own abilities to provide adequate training.

The suggestions that we put forth must be proceeded by a set of assumptions, as well as warnings, covering the limits of the analysis. Throughout this paper, I assume that the military would be unable to produce an adequate size and calibre of force without some system of compulsory service. A voluntary force is not impossible, but political as well as economic considerations do not make it either reasonable or desirable. It is also assumed that the population base for supplying this is considerably larger than the numbers needed for the specific military mission. The primary burden of this paper will be to suggest a more formal approach for utilizing the spillover effects of the military's primary mission and the implications of altering that mission.

I. Caveats

The testimony submitted before the Armed Services Committee[1] on potential draft revision requires that attention be focused on some fundamental problems. The examination of these problems is a precondition to any constructive dialogue on the broader social and economic questions we face. Two particular geists, both at variance with each other, are relevant to the proposal of Section IV.

1. Mystical Role of the Military - A romantic retelling of old war stories tends to inflate the experience in terms of its benefits while discounting its horrors. This finds expression in

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[1]Review of the Administration and Operation of the Selective Service System, Hearings before the Committee on Armed Services, House of Representatives, Eighty-Ninth Congress Second Session (June 23-30 1966).

the pro-universal military service argument which emphasizes the moral fillip of the military. It forever has use as a tonic to a flagging moral capacity in the country. Posed in this way, the military invests not in the economists' "human capital" with market value, but in a more illusive stuff without which nations and civilizations fall.

While I do not doubt that there is a "good" produced by the military experience, the emphasis therein raises two sub-problems.

a. It broaches the legitimate question of the functions and influences of the military in a democratic society. To question the military as a source of virtue is totally appropriate. To restate it in the style of the economist: could not this spirit be created in a better, more democratic and cheaper way?

b. The moral "value added" produced by the military is not measurable. That does not mean it should be dismissed, but it calls for a more rigid requirement to determine the appropriate weight in evaluating alternative programs.

2. This pro-military position is clarified when we join the anti-militarist argument and disassemble the civilian manpower contribution of the military. First, the military trains individuals who may transfer their training and job experience and economic perceptions to their civilian life thereby enriching themselves, the economy and society.[1] The former contribution is quantifiable and its specification is my primary research endeavor.

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[1]This is not to dismiss offsets to this gain, i.e. the economic contribution of the military is the net discounted income stream of having gone into another activity.

The use of the organized military structure and training system is not designed to encourage militarism, but merely a realistic acknowledgement that the military is a potent resource. It is only prudent that we try to use this asset for non-military purposes. I reject the use of the military to expand the internal value system.

I do strongly urge that we consider the use and development of by-products from the military system in a formal and structured way. The potentials of this use are now barely understood.

II. Potentials of the Military

The potentials for using the military can be developed through a large number of avenues. Broad political mandates dictate that the government create full employment, maximize economic growth, encourage political and economic growth of the world and maintain reasonably stable prices. Very specific ends that we wish to see produced supplement these broad goals. For example, an educated, healthy society residing in a favorable, unpolluted environment, safe in person and property both in home and outside are now part of the explicit goals of the United States.

To achieve the large array of public goals has always prompted the creation of non-private activity. The development of the free school system from the organization of the land grant college to the primary schools and next possibly nurseries has been partly prompted by the desire to increase a productive manpower pool. Unfortunately, the inter-relations between the government's manpower activity and general goals like economic growth have not been clearly noted. Thus, one of the most crucial aspects of the growth of the United States economy in the nineteenth century was the

lacuna...

been clearly noted. Thus, one of the most crucial aspects of the growth of the United States economy in the nineteenth century was the development of internal transport, particularly the railroad. This period of railroad building is viewed also as one of the significant accomplishments of the free market. It has not been noted that this accomplishment was significantly aided by the manpower contribution of the military. The technical requirements of manpower and material logistics were worked out by the only group with the experience and training to do the job: former military officers. Similarly, the "human capital" invested by the military proved most beneficial if not absolutely essential in the organization and command of the large work force necessary to construct the railroad. There is no need to labor the point that what was true in the United States then is plain to see in most underdeveloped areas today. It is less obvious that this phenomenon is still operative today in the United States.

The pursuit of better health and the preservation of law and order currently are two of the most clearly desired social goals. Manpower is a limiting resource in satisfying our needs in both safety and health. Efforts at bettering our lot in the form of new legislation authorizing expenditures of funds for medical aid may only serve to raise the prices of services and not increase the flow of real product, or the service may come, but only slowly and at great cost.

Protection is an excellent example of the type of potential we have for meeting our goals. There is no need to belabor the statistical details on crime that will dramatize our future needs.

For example there is an accelerated growth of crime against property in smaller cities and suburban areas. Partly this reflects the age-crime relation which indicates a higher proportion of crime in the age group under 24. That this age group is more densely settled in suburbia may be a fact for influencing the incidence of crime. Even if the rates of crime for different types and sizes of communities were not to worsen, the demographic trend in our country would result in an increase of crime nationally.[1] While considerable efforts need to be applied to the efficient use of the work force in the protection area through such devices as better telecommunications and transport, as well as in the quality of police, there is strong indication that the incidence of crime is universally related to the number of police.[2] Consequently, one can project the aggregate demand for police under stated goals for levels of criminal activity. Thus in Table 1 we have some estimates of the demand for police at our present level of national crime, at a level projected on the basis of extending "community specific" crime rates and at various optimal levels. We are already aware of the difficulties faced by communities in staffing their police forces. Many cities are recruiting nationally to get their share of the limited supply. While the demand for numbers of police has increased, our requirements for police are also on the rise. We desire a better quality of police who have no unhealthy,

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[1]Belton M. Fleisher, The Economics of Delinquency (Chicago: Quandrangle Books) 1966.

[2]This function is complex, depending on a host of variables such as size and community density of population, age structure and income. In all, the correlation is negative.

TABLE 1*
ALTERNATIVE PROJECTIONS OF NATIONAL DEMAND FOR POLICE

Date	A Demand for Police[2] Deteriorating Protection	B Demand for Police[4] Maintaining Protection
1965	369, 708[1]	388, 193
1970	387, 864[3] - 396, 861	407, 257 - 416, 704
1975	406, 790 - 432, 201	423, 129 - 453, 811

[1]Actual number of police officers

[2]Rate of 1.9 officers per 1,000 population

[3]Different estimates are based on Bureau of Census Projections of population at lowest and highest rate.

[4]These figures have a 5 percent gain over column A representing the current deficiency rate.

*Based upon correspondence with International Association of Chiefs of Police, Inc.

anti-social desires for uniform, and gun and club; who can do more complex jobs with a more sophisticated technology. To hire screen and prepare this cadre is expensive and for many communities almost impossible. However what a community purchases when it cannot buy adequate police is more crime. One way to meet the problem is to increase wages which should help and is an unquestionable part of the ultimate solution. But we may be well towards a solution if we could only recognize it.

The military in 1959 trained over 26,000 police. In the Army, for example, these men are carefully screened and have a minimum general aptitude above the mean score in the Army. After eight weeks of basic training, they receive eight weeks of advanced individual training and then further time is spent in basic unit training before they are sent out to work with supervisors as a member of the military police operating unit. Having observed the training and duties of the police in the military and in the civilian sector, I must conclude that there is little wanting on the military side. In fact, except for some of the more sophisticated metropolitan police, or state police systems, the teaching, curriculum and experience in the military cannot be duplicated in most local systems. In the two years in which they serve they get an excellent background and experience. The question that we must ask is, what do they do with this experience after service.

An indication of the ease with which these trained people may transfer can be seen from the system that prevailed in New York City. Less then 10 percent of the police force in New York have M.P. experience. There, a normal waiting period between passage of the Civil Service test and entry into the police academy is twelve

to eighteen months. In New York, no credit of any type either in terms of higher wages or better position is given to the candidate with an MP background. At the other extreme are communities that hire military police without further checking their background. They do this in the belief that the product they purchase will be a best buy at any cost. I would suggest that we have not as a nation tried to tap this source of human capital. The gains we measure from our study which are reported below are the result of chance and not design. Much can be done to improve the transferance and thus aid broad society goals.

Health service improvement is another significant national goal. Our desires in this area have come up sharply against the reality of limited qualified personnel. The health professions in recognition of labor shortages in many occupations are experimenting with new modes of organization. In addition to the global deficit, this shortage has a geographic dimension that creates serious special problems.

Physicians, like all professionals, have a strong urge and need for togetherness. Hospitals, as the nodal point of the profession, tend to be clustered in urban areas. The density of demand permits the luxury of a variety of professional activity, as well as allowing the use of the most modern equipment, this in a field that is markedly changing its technology. Many of the sparcely settled areas in the United States are ill-equiped to meet their minimum medical needs, and the situation is unfortunately deteriorating. Medical standards in most secluded communities are antique.

TABLE 2
PROJECTED DEMAND FOR SELECTED MEDICAL OCCUPATIONS - 1965, 1970, 1975

Occupations	1965	1970	1975
	(No. employees in thousands)		
Total Health Services	2,650	3,100	3,500
Nursing Personnel	1,200	1,425	1,625
Laboratory Personnel	95	130	165
X-ray Technicians	30	40	55
Pharmacists	11	12	13
Rehabilitative and other technicians	120	140	165
Medical Records Personnel	33	37	40
Dietary Personnel	235	265	300
Laundry, Housekeeping, Maintenance	280	320	345
Administrative and Office	500	570	600
All other, miscellaneous	146	161	192

Source: Peter E. Haase, "Technological Change and Manpower Forecast," Industrial Relations (May, 1966) p. 68.

There is little evidence that the practioners keep up with professional developments The overall picture for future needs is seen in Table 2. These estimates are based on a fixed ratio of hospital beds to population, and an appropriate mix of occupation to beds and/or physicians. The assumption of the fixity of the ratios or quality of service is questionable, but shall not be discussed here. The last columns are a crude measure of the potential need, not the least deficiency being the absence of relevant wage information.

Without having to specify the exact needs, there appears to be a real shortage in the health field that precludes adequate medical care.

Public policy to overcome the problem is expressed in programs to increase the future supply of doctors, nurses and technicians. We support our existing medical schools more intensively and encourage new institutions to produce a greater supply of professionals at the top levels. At the same time, we initiate training under a burgeoning population of community colleges and technical centers to train for the expanding paramedical fields.

Despite those programs, a casual enumeration of some of our health goals and activities will illuminate the depth of the health manpower problem:

1. We are trying to stimulate increased medical care through localized service for our poor as a device to reduce poverty.

2. We encourage underdeveloped areas to increase their health facilities on a massive basis. This stimulus is projected through our lending programs.

3. We are dependent upon a supply of foreign doctors, interns and residents to fill the gap in our current demand for medical service. Even with a sizeable importation of foreign doctors, our hospitals are woefully understaffed.

4. Nurses are in short supply. While the market is attempting to solve the problem, the supply is artificially restricted by professional organizations. This is further abetted by the teaching hospitals who require student nurses as a source of competent, cheap labor.

5. Professionalization is increasing along with its normal controlled by-product access to skill ladders.

When we put these casual observations together, they give adequate grounds for a pessimistic appraisal of programs to improve overall medical standards. Alongside this dismal picture, we have the simple fact that the military each year releases nearly 60,000 individuals who have served in the health professions. These individuals cover the broadest range of medical occupations. At the top of this professional ladder, the military provides training and experience to doctors, such as residency training at pay superior to non-military hospitals. At a slightly lower level, the Army is initiating a nursing school to satisfy its voracious appetite for medical services. There is a remaining understructure of paramedical occupations that stands as a great potential for satisfying our goals in the health field.

The utilization of this resource requires solutions to some difficult problems. The medical system in the military has special characteristics that make it unique in the United States. The

military, faced with a potential need for medical services that would be immediate, geographically dispersed and frequently dispensed under hostile conditions, has had to improvise a structure for producing medical services and an occupational system to carry out the mission. While the end flow of services is essentially equivalent in the military and civilian areas, the military "production function" is quite dissimilar. Thus, the military provides two avenues to improve overall health needs.

First, is the provision of a model of organization for a potential reorganization of production. Accompanying this is an array of production and manpower management techniques that are systematically altered by the military. And, it must be noted that the military is not a monolith. The diversity of missions among the services provides a number of models that can be followed.

Second, is the transfer of the military skills and experiences of the large number of paramedical personnel. Some of these occupations we know have immediate counterparts in the civilian area -- primarily X-ray and laboratory technicians and a growing group of therapists. Other paramedical occupations are rich in medical experience. For example, medical corpsmen perform discretionary activities of diagnosis and medication. While not having the training of nurses, they perform functions closer to that of doctors and more closely approximate the "feldscher" in the European medical hierarchy. There is no occupation like the medical corpsman in the civilian sector. The most difficult problems of crossover occur here. The problems focus on what role these veterans would play within the medical structure and how they could be fit within the

existing pecking order. Complicating the crossover is the fact that the wages of the non-professionals are dominated by females. For example, licensed practical nurses receive approximately 75 percent of the registered nurse's pay. A retired medical corpsmen with twenty years experience, a grown family, and a tradition of control and command would lose both status and pay. These factors serve as a strong deterrent to the transferance of this great skill.

From scant data collected on the careers of retired military personnel, we know that medical occupations have the highest rate of transferability. Some 37 percent of military officers transferred their skills compared to 25 percent over all.[1] There is considerable bias in these figures, for some of these retired people are doctors and nurses who have of course stayed in their professional activities. The actual degree of transfer as well as the potential (under various specified conditions of wages and job structure) should whet the appetite of anyone concerned with meeting the problem of supplying health services.

What has been said about police and medical personnel holds true for a very large number of military occupations. The potential for expanding the trained work force in many occupational and industrial areas is related to the rate at which veterans transfer their skills from the military, as well as the rate in which the population is exposed to the military training. In considering the overall educational goals of the United States, as well as the services which we wish to see produced, it is only prudent that

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[1]Bureau of Social Science Research Study on Retired Military Personnel, page 203, Table 142.

we consider the military as a supply agent of these services along with other institutions. While we may ultimately reject the use of the military as a training institution, it would not be reasonable to eliminate them before we considered their potential vis a vis other institutions.

III. Crossover Experience of Army Non-Careerists

The Defense Department faces a dilemma. Occupational linkage is apparently a strong variable in fostering enlistment, while a negative factor in re-enlistment.[1] This leads to ambivalence in the military's attitude towards crossover. The problems while not insurmountable cannot be perfectly resolved. I shall not concern myself with the retention problem.

The data for this section are derived from a longitudinal analysis of a sample of non-careerists in the Army. Ten broad occupational groups were chosen on the basis of degrees of potential crossover - largely through a priori analysis - as well as significance in the overall training effort of the services.[2] The broad groupings are shown in Table 3.

The universe is composed of all reservists, non-careerists in these occupations who had been out of full-time service for a minimum of two years. From this universe a random sample was drawn. Extracted military records, as well as a telephone interview, provide the substance of the material that follows. These

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[1]The military has long been aware of the cross-over problem and has tried to respond to it. Other branches of the government are only now becomming cognizant of the potentials and are attempting to evaluate the impact on their institutions. The funding of this study, originally by private sources, is an indicator of the awareness of the United States Government to the problems here considered.

[2]Substantial advice and aid was given by the services in this task.

TABLE 3
OCCUPATIONAL GROUPINGS USED IN MILITARY STUDY

1.	Police (Pol)
2.	Electronic Data Equipment Skills (Eqp)
3.	Operatives - Construction and Repair (Ops)
4.	Trades Related to Telephone (Tel)
5.	Radio, Radar, TV and Auto Repair (TV)
6.	Teamster and General Warehousing (Teams)
7.	Esoteric Skills - High Formal Training (Eso)
8.	Combat Skills - Infantry (Inf)
9.	General Military - Duty Soldier (Duty)
10.	Business and Service Activities (Ser)

represent first and crude results. In finished form, we shall have an expanded sample and information by: region, race, age, aptitude level and education. This list of variables is illustrative and not exhaustive.

The potential of the Military Training Study's design, as well as some first and rough results, can be gleaned from Tables 4, 5, 6 and 7.[1]

Tables 4 and 5 refer to the occupational experience of draftees. Table 4 covers the first occupation after service while Table 5 refers to the current occupations of those veterans who had switched jobs. The same material is covered in Tables 6 and 7, but refers to volunteers. Within each table, the data are subdivided into three broad categories: those veterans who had a job preference at the time they entered service, those who did not have a job preference and lastly those who had served in the occupations for which they had some occupational preference. The "yes" signifies that the respondents judged their job was highly related or somewhat related to their military experience, either training or service.

As anticipated, volunteers with some vocational preference had a good opportunity to gain experience in those occupations. Some 44 percent of the volunteers served in their preferred activity; while only 19 percent of the draftees were so benefited. Further, volunteers with an occupational preference at the time they entered

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[1]At the time this paper was prepared, only 817 completed files were available. A completed file consists of the coded military record, the telephone interview and the military status card. We have completed approximately 2,100 interviews. The 817 reported here is likely to be representative, but this has not been statistically established.

TABLE 4
DRAFTEE APPRAISAL OF RELATEDNESS OF FIRST POST SERVICE JOB
BY MOS GROUP AND DESIRE FOR CROSSOVER

Group	Had Preference			No Preference			Served in Preference		
	No. Yes	Total No.	% Yes No.	No. Yes	Total No.	% Yes No.	No. Yes	Total No.	% Yes No.
1	3	25	12	10	47	21	1	10	10
2	14	23	60	7	18	39	13	18	72
3	30	43	70	27	50	54	17	22	77
4	9	16	56	9	14	64	8	12	67
5	12	21	57	6	18	33	9	12	75
6	4	16	20	7	32	22	2	3	67
7	4	21	19	3	23	13	2	8	25
8	9	42	21	12	74	16	4	10	40
9	0	3		1	17	6	0	1	
10	5	11	46	4	19	21	3	4	75
Σ	90	221	41	86	312	28	59	100	59

19 percent of draftees served in field of preference
45 percent of draftees with preference served in field of preference

TABLE 5
DRAFTEE APPRAISAL OF RELATEDNESS OF CURRENT JOB
BY MOS GROUP AND DESIRE FOR CROSSOVER

MOS Group	Had Preference			No Preference			Served in Preference		
	No. Yes	Total No.	% Yes No.	No. Yes	Total No.	% Yes No.	No. Yes	Total No.	% Yes No
1	3	12	25	8	27	30	2	5	40
2	8	16	50	5	12	42	6	13	46
3	5	11	46	7	27	26	3	5	60
4	3	8	38	1	6	17	2	6	33
5	7	11	64	2	9	22	4	6	67
6	6	12	50	5	19	26	2	3	67
7	4	14	29	7	14	50	1	5	20
8	3	23	13	10	44	23	1	5	20
9	0	2		1	9	11	0	0	
10	2	7	29	1	12	8	2	4	50
Σ	41	116	35	47	179	26	23	52	44

TABLE 6
VOLUNTEER APPRAISAL OF RELATEDNESS OF FIRST POST SERVICE JOB
BY MOS GROUP AND DESIRE FOR CROSSOVER

Group	Had Preference			No Preference			Served in Preference		
	No. Yes	Total No.	% Yes No.	No. Yes	Total No.	% Yes No.	No. Yes	Total No.	% Yes No.
1	2	28	7	0	14		2	21	10
2	19	25	76	0	2		14	20	70
3	9	20	45	5	18	28	9	15	60
4	2	15	13	2	5	40	2	12	17
5	21	57	37	3	13	23	15	40	38
6	2	11	18	1	14	7	2	5	40
7	1	13	8	0	2		1	10	10
8	3	18	17	0	11		3	7	43
9	0	3		0	4		0	2	
10	1	6	17	0	5		1	4	25
Σ	60	196	31	11	88	13	49	136	36

44 percent of volunteers served in preferred activity
69 percent of volunteers with preferred activity served in preference

TABLE 7
VOLUNTEER APPRAISAL OF RELATEDNESS OF CURRENT JOB
BY MOS GROUP AND DESIRE FOR CROSSOVER

Group	Had Preference			No Preference			Served		
	No. Yes	Total No.	% Yes No.	No. Yes	Total No.	% Yes No.	No. Yes	Total No.	% Yes No.
1	4	19	21	4	7	57	4	16	25
2	14	19	74	1	1	100	12	14	86
3	9	14	64	3	10	30	8	11	73
4	4	13	31	1	4	25	3	10	30
5	13	37	35	1	8	13	10	28	36
6	1	6	17	1	11	9	1	2	50
7	3	12	25	0	1		3	10	30
8	1	13	8	0	8		1	7	14
9	0	2		0	2		0	1	
10	1	4	25	0	5		1	3	33
T.	50	139	36	11	57	19	43	102	42

the service had a 69 percent assignment rate in those occupations compared to 45 percent for draftees.

An examination of overall experience indicates some 30 percent of non-careerists used their military occupations in their first job. However, the rate varies between the draftees and enlistees. For example, draftees had a 33 percent utilization rate as compared to 25 percent for volunteers.[1] One should not rely too heavily upon these gross figures for drawing conclusions about transferance.

Inside the sample there is a high variance in utilization among the component occupational categories. A considerable percentage of the draftees' spillover from the military to the civilian is in occupations 2, 3 and 4 specifically the electronic data processing operatives and telephone trades. We are unable at this time in our analysis to discern the relation between the military occupation of draftees and their pre-military experience. The assignment practices of most services, particularly the Army, is significant in interpreting the results. The Army draftees are older and therefore should be somewhat attached to an occupation. Policy dictates that the Army utilize pre-military skill within the service wherever possible. Thus, for plumbers, electricians and telephone repair people, it is quite likely these individuals would be given a direct duty assignment; that is, awarded an MOS immediately after basic training. Thus, we may be correlating the post-military with the pre-military experience. With these first data we are unable to weigh the impact of the military on human capital formation.

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[1]These results are calculated from the tables.

In comparing draftees and enlistees, different patterns emerge concerning the impact of time on usage. A comparison of Tables 4 and 5 indicates a tendency for draftees to let their military skills atrophy with time. Thus 41 percent of the individuals who had a preference for an occupation used their experience in their first job while the rate is 34 percent for the job changers. This experience is repeated for the group that served in their preferred occupation. In the first post-military employment, some 59 percent used their skills as compared to 44 percent for the switchers. Disaggregating the data by occupational groups, one sees a tendency for draftees who had worked in groups 2, 3 and 4 to transfer away from their military skills. One possible interpretation is that military experience encourages occupational mobility, even for individuals who had used their prior experience in the military. That is, activities such as building trades and various types of hard skills show a high initial usage and then a strong decline.

A reverse trend appears to take place in group 1, police. Time encourages usage of these skills, possibly as a way of overcoming market barriers. This experience of ex-military police through time holds true for all draftees, whether they had a job preference, no preference, or had served in their preference.

Two final observations on the inter-temporal experience of draftees are in order. First is the experience with group 7 skills. These involve substantial formal technical training and are occupations that require careful screening for mathematical and mechanical aptitude. Draftees who had not thought of using these potentials move toward this activity. This category exemplifies how individuals

exposed to an occupation transferred their experience to it, even though they have no vocational interest at entry. Interestingly enough, the military manuals claim these occupations have no civilian correlates.

This time pattern occurs again, but to a lesser extent for group 6, the general warehousing and teamster operations. The failure of that category to decline through time may be an indication of the wage rate paid to teamsters.

These movements are also observable in the volunteer group. For example, military police show very low transfer on their first post-service job for all groups. The group 1 switchers show a marked usage for all preference groups. The lag in utilization by military police may again be attributable to the barriers in the job market, for example the long waiting period to gain entry into academies. The general inter-temporal trend appears to be similar for draftees and enlistees.

There is a marked difference in utilization between volunteers and enlistees. Draftees tend to use their skills more readily than volunteers. This is so for individuals who had job preferences, but is most striking for veterans who did not have job preferences. When these individuals were exposed to occupations in the military, they attempted to use the experience more readily. This is suggestive of the force the military may have in teaching individuals who are forced into a skill which is convertable.

The highest transferance for any group is demonstrated for draftees who served in their preferred skill. A tentative conclusion is that forced service is not necessarily a deterrent to

crossover. One must hold back on this conclusion generally, but restraint is most important for the draftees who served in their preferred field. Our conclusions await analysis of the pre-military, military occupational relations. Nevertheless, it is likely that the general trend of higher utilization by draftees should be of considerable significance in future draft and manpower policy.

The view most people have about the usage of military experience is confirmed with force for some groups. It is quite apparent that all groups serving in electronic data processing have in fact substantially transferred their skills. The highest group is volunteers who had a desire and received some training in this field. It is slightly less for draftees, but one is encouraged to note there is a substantial increase in utilization through time for the draftees with no occupational preference.

Fabled in story are the millions of ex-G.I.'s who have gone into T.V., radio and automobile repair. We do observe a tendency for this group to utilize their skills, but with a time lag. We shall investigate the reasons for this lag in the course of our study.

The Military Training Study is not now prepared to speculate on the civilian activities of group 8. That is, individuals who through time found a market use for their combat infantry training even though they had no prior occupational interest. It will be of no small interest both to this study and the general public to uncover the occupational crossover for light and heavy weapons infantrymen.

In order to fully investigate the alternatives of occupational

transfer, respondents were questioned about secondary jobs. No strong relationships were found. One surprise was that the T V radio and automobile repair group were a high moonlight group but the percentage of moonlighting related to their military experience was inconsequential.

All the relations discussed so far relate to the primary MOS. That is, the occupations assigned on the basis of tests and advanced individual tra ning. In later analysis, the relation will be tested for duty MOS - the actual work done and a combination of both.

For policy reasons, two additional sets of information are useful. First, what use did the veterans who looked for jobs find for their experience in the market. Second, what factors discouraged crossover. The information shown in Tables 8 and 9 is again preliminary and will be analyzed in numerous ways.

A first appraisal of the veteran's estimate of the job value of the experience is shown in Table 8. The entire sample is collapsed in this table. The base is all reservists who were hired for positions sought based upon their military experience. The results are inconclusive as the total is significantly less than the total numbers reporting crossover. The tentative implications are either the market undervalues the training or the experience has no convertability. A more detailed analysis of these data as well as the material in Table 9 is of utmost importance for civilian usage of their skills and armed forces pay policy.

TABLE 8
VETERAN APPRAISAL OF BENEFIT DERIVED IN OBTAINING A JOB RELATED TO MILITARY EXPERIENCE

	% of Total	Number
Received better job title	37	45
Received better starting salary	14	17
No help	48	58
Don't know	1	1
	100	121

TABLE 9
PERCENTAGE DISTRIBUTION WITHIN EACH MOS AND PRIMARY REASONS
FOR NOT SEEKING A RELATED OCCUPATION

MOS Group	A Pay	B No Similar Job	C Not Available	D No Vancancies	E Poor Advancement	F Bad Hours
1	64	4	4	0	7	7
2	60	20	0	0	7	0
3	60	18	2	2	12	0
4	73	8	0	4	4	0
5	77	5	3	3	3	0
6	42	24	16	0	16	0
7	32	38	24	3	3	0
8	23	67	3	0	3	0
9	25	50	13	0	13	0
10	58	17	8	0	8	0

TABLE 9 (Continued)
PERCENTAGE DISTRIBUTION WITHIN EACH MOS AND PRIMARY REASONS FOR NOT SEEKING A RELATED OCCUPATION

MOS Group	G Security	H Fringes	I Extra Training	J Disliked Job	K Other	L D.K.
1	4	4	4	4	0	0
2	7	0	7	9	0	0
3	5	0	2	0	0	0
4	8	0	4	0	0	0
5	5	0	0	5	0	0
6	0	0	3	0	0	0
7	0	0	0	0	0	0
8	2	1	1	0	0	0
9	0	0	0	0	0	0
10	4	0	4	0	0	0

The relation of pay, retention in the military and civilian utilization are all intertwined. For example, for draftees and enlistees, Table 9 shows the percentage distribution of primary reasons for not seeking jobs related to military skills. The response categories were unsolicited, but pre-coded. In occupational categories 1-5 and 10, low pay dominates as the reason for non-transfer. This becomes even stronger when fringes and advancement are joined with pay.[1] Groups 6 and 7, teamsters and esoteric skills, do not regard pay as the primary block, but a joint factor with poor market fitting. Fortunately, group 8 finds difficulty in locating jobs. Group 9 (duty soldier), probably the lowest occupation also shows poor fit, only the reason we suspect is low market perception by the individuals.

All of the findings indicate that transferance of specific training from the military and civilian can be enhanced. The policies that will facilitate the increased utilization of these skills basically fall into two categories. First, there is a more systematic effort at job counseling prior to severance from the service. Individuals should be made aware of the potentials which await them in the civilian market for their experience. Other labor markets services should include attempts to educate employers on the basic skills of these veterans, as well as lowering the barriers which may retard transferance; for example, a reduction of the police waiting period. The second major activity refers to wage

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[1]It would appear that the argument of military people with reference to losing technically trained first termers to higher pay civilian correlates is erroneous. The individuals who move out of these Mos' have skills, high ability and extremely broad job and income potential. They appear to use them. We shall examine where these people go and what their earnings are in their chosen alternatives.

rates paid in certain skilled occupations. It appears obvious that an ample supply of police can be obtained by raising wages. However, a lower real cost to the economy would result through cross-over of skills rather than training de novo. Attrition may be minimized and therefore the value added of this training could exceed alternative forms of human capital formation. Having considered how transferance might be altered, it is necessary to examine the broadening of the base of military training.

IV. Military Service and Human Capital

The development of skill and experience with crossover value was found to be a factor that encouraged enlistment. The NORC study showed that the potential volunteer had a strong interest in the relation of post-military occupations and military experience. These responses can be seen in Table 10 and indicate an appetite that has been insufficiently whetted because of scarcity of data.

The potential value that the military has for the economy is determined in part by the proportion of the population that serves the military. We have indicated that transfer could be affected for those who have served. We can now conjecture on the implications and consequences of spreading this experience on a larger population group.

The military aquisition policy should maximize the certitude of service. The unknown probability, but high likelihood of different types of wars in the future implies a very low probability of non-service. Unstable manpower requirements yield an altered set of specifications at the induction centers. To make an alternative assumption of certainty of not serving would fly in the face of experience and be dangerous. Therefore, we should warrant that all citizens will be put through the military system leaving policy and operational flexibility in the age at which a person would serve, as well as the length of the tour and the compensation both while in uniform and subsequent to release. The surety of service underlies the following analysis.

TABLE 10
RESPONSES OF DRAFTEES TO FORCES THAT WOULD ENCOURAGE ENLISTMENT

	Nonstudents	Students
If guaranteed training in a job or skill useful in civilian life	29	20
If sent to school or college at Government expense, before or during military service	18	31
If sent to school or college at Government expense, after military service	8	12

Source: Review of the Administration and Operation of the Selective Service System; Hearings before the Committee on Armed Services, House of Representatives, Eighty-Ninth Congress, Second Session, June 22-30, 1966.

It is useful to subdivide the universe[1] of theoretically potential soldiers into appropriate categories on an *a priori* judgement of potential capital crossover.

Considering those that do not serve currently, the physically and mentally unfit are probably of greatest interest. The lowering of barriers, as conceived in the thinking behind the STEP (Special Training Education Program) and other programs would open the military to a large number of individuals. The immediate interest is those individuals who, under current deferment policy, would not have been deferred for other reasons at a later date, such as a 4-F who would be eligible for a student, or an occupational deferment. More specifically, we are interested in that part of the population discussed in *One Third of a Nation*.[2]

The program to eliminate the sources of poverty suggested in that document fostered the Job Corps which, as one would have expected, has had a checkered career.[3]

Any scheme, like the creation of an *ad hoc* institution, such as the Job Corps, or the various programs suggested to guarantee income are not without merit, but it would be useful to know how successful these schemes may be relative to processing this group through the military. The costs and benefits should consider the long-run effect on the individuals, as well as their progeny.

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[1]The referent throughout is a male universe. Extention of the argument to females is a point that should be seriously considered.

[2]U.S. President Task Force on Manpower Conservation. *One-Third Of a Nation, A Report of Young Men Unqualified for Military Service* (January 1, 1964).

[3]This group lends itself to apparent failure for any program. In fact, there is no easy way of evaluating whether a program is successful or not. They are a difficult group to help under the best conditions.

The utilization by the military of 1-Y personnel would not be without cost to the defense establishment, both in the extra time required for training and the training resources that would be diverted from other activities. We know that bringing this group into the services would increase the discipline problem of the military and raise the unwarranted assertion that the military is a haven for marginals and misfits.[1]

Programs for upgrading were employed extensively during World War II through the USAFIT program as a means of providing increased supplies of manpower required to end the war.[2] This program has been in effect almost continuously since the end of World War II. An examination of this experience, even with limited data, may be important in making successful policy for the 1-Y group. The benefits are quite obvious in this program for those who receive training. A considerable flow of general human capital was produced which could be transferred.[3] It is also likely that some

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[1]The idea of bringing in 1-Y's requires a very careful control on the career force in the military. Two quite opposite effects are undoubtedly observed. First, low achievers have had a greater tendency to remain in the military than do high achievers. Increasing the re-enlistment of marginals should be avoided as it may potentially dilute the military's ability to perform its primary mission. Second, those who have been rehabilitated and want to become careerists show in many cases that they become excellent soldiers. These people should be encouraged to remain in the military and at retirement the capital that has been developed salvaged for the civilian sector.

[2]Procedural rules of military record keeping preclude an intensive investigation of this experience.

[3]General capital is defined as that level of ability required by the market before a firm would willingly invest any resources into an individuals capital fund.

"occupational specific" human capital may be transferred.[1] It is assumed that the costs of capital formation are at least comparable to the real costs outside the military.

Success with 1-Y's will not yield a maximum return to the military, but will yield a substantial product to the economy. This potential spillover points again to the deficiencies of cost effectiveness applied to restricted bureaucratic lines.

The conscripts or volunteers who are not benefited by the program are not likely to be hurt by it either. The chances of recovery for this group are almost nill. For these people, the negative income tax in some form should be considered as a powerful potential for meeting society's obligation.

All that has been said for the 1-Y group, those who should be called in only in an emergency, may also apply to category five individuals. However, some necessary exclusions are obviously required. Instead of the current standard for admission - the likelihood of adapting to military training in reasonable time - an alternative is required. That is, a new set of tests should be instituted that would predict for appropriate characteristics, the likelihood of average salvageability. In the health and moral area, new tests and requirements of salvageability are surely needed.

The current standards for entry into the military have performed yeoman service for their historic mission, but a considered change in assignment must be accompanied by some alterations. This

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[1]The military would have to develop useful occupations for these marginals. That is, those who are not brought up to the level where they could be employed in regular military occupations by the remedial program. This would be useful in demonstrating how marginals could be used in the market. Private employers would have no real incentive to invest in this type of knowledge formation.

revised standard should open for conscription all those who are now not acceptable for physical or moral reasons, as well as those who do not measure up under the mental requirements. All too frequently, there is a high intercorrelation between deficiencies of health, aptitude and conduct. This group would, in fact, represent the greatest challenge and potentially a very high incremental return to society.

There are difficulties in applying this analysis to those who for educational and occupational reasons are now by-passed for service.

Too frequently schools are used as a sanctuary from military service. The current deferment policy encourages this. The liberality of free higher education also encourages many to enter the university to forestall making a career choice, and/or to indulge in the consumer aspects of university life. In either case, the consequences are generally undesirable by fostering a misdirection of resources through time. The student, by not being available for other projects, forces an immediate loss to the economy. The loss in the longer view is sustained through the misapplication of skills in career choice. While we are ill-prepared to measure these losses currently, our judgement suggests that these losses are considerable.

These losses would unquestionably be reduced by universal service. For example, the exposure to careers not directly related to college preparation, coupled with the time spent in the military, should encourage men to leave the military for a related civilian occupation, or go through occupational paths that do not require

higher education.

A universal system of military training, without deferments whereby college students could escape forever, should force people into the military at a younger age. High school graduates might well not return to college, or consider going on to universities. The benefits of this are twofold. The group that did not go on to universities who were in exile there before would help remove the capacity pressures on institutions of higher learning. Too frequently, both at the undergraduate and graduate level, individuals opt for higher education who for their own and society's welfare should be elsewhere. The policy of inescapable service would help relieve this pressure.

The veterans who enter universities or technical training programs after leaving the services might add the same tone to schools that followed World War II. It is not unreasonable to conclude that the net impact of universal service on this group may be positive. Unfortunately, insufficient attention has been given to measuring the effectiveness in human capital terms of the various G.I. bills. It is most reasonable that some post-service compensation programs should accompany universal service.[1]

Educational and occupational deferments that lead to avoidance of service have raised some of the most difficult questions of equity for the current system, as well as all other proposals. Whether and how individuals should serve raise difficult questions

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[1]These benefit programs should be treated as a positive instrument of policy, i.e. to achieve increased crossover and/or service in particular occupations. They should not be treated as a gratuity for having been in the service.

of economic equity and efficiency, as well as political and social justice. If individuals who pursue higher education are treated no differently than those who enter the military at a younger age. the economy suffers through a reduction in the current and future flow of resources. The military is also disadvantaged by not having an appropriate base of skills, which it must somehow overcome. On the other hand, if these individuals are to escape for all time, questions of class and race bias in service and the inequitable distribution of responsibilities of citizenship are raised. The following special programs are needed to yield an efficient, as well as an equitable and just service.

1. Service should be performed at the youngest age consistent with other goals. Thus, the main group of conscripts or volunteers would enter the military upon completion of high school. Deferment would be given to those accepted to college until completion of the program, provided they maintained a standardized level of performance. The individuals deferred for higher education would know that the military is inescapable. A revised R O.T.C. program as suggested below should be introduced to help meet the military manpower needs

Appropriate branches of government, such as the National Research Council, Department of Health, Education and Welfare as well as the Department of Defense, should define critical skills required in the military and in the economy, as well as determine the training needed to acquire these skills. For example, physicians and teachers may be so classified, and the military would issue elongated deferments to individuals in these programs. The

doctor completing medical school, or internship, could then be inducted, or deferred even longer, to absorb the added training required for a residency certification.[1] The military and society would then have a more valuable asset at their disposal.

2. The reserve officers training corps should be revised to provide more intensive military work and drill during vacations and less emphasis upon the military work during the school year. Students faced with assured service may be more willing to undergo R.O.T.C., particularly if it were connected with other incenti es such as partial scholarships or some assured summer income. This program would help fill the growing need now and in the future for junior officers, a need expanded by universal service.

3. The induction of the entire age pool would permit a shortening of service time within bounds needed for military effectiveness. It would generate more trained individuals than could be used for the specific military mission. Assignment would be based upon the military's needs, but once these are satisfied, the group already put through some level of pure military training would be used in other activities as required by overall governmental policy both within the United States and abroad.

No one could escape some military experience, which is desirable on equity grounds, but individuals would be placed where their training would be most useful. The productivity in occupations would accompany some sacrifice of service. An allotment of doctors, teachers and police to communities throughout the country is not

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[1] Latitude of time in service, as well as pay - rank status could be adjusted to the specific temporal requirements of the military, much as in a market system adequate supply and demand are determined by price.

unthinkable. The pay of these individuals and the length of tours would be determined by a centrally controlled authority to help create parity between those who served in purely military capacities within the military and those who pursue professional endeavors in a quasi-military role. While not unlike alternative service, it is at once more equitable and responsive to the communities' needs.

Conclusion

It is plain that there is no perfect solution to the military service problem. We face a need for increased, specific manpower, as well as military manpower. The utilization of the military for activities which are not purely defense related has great historical precedent. To aid in the creation and transfer of skills is a rational approach to policy in a body politic that continually asks its government to do more for it and therefore must be prepared to sacrifice more in meeting its own demands.